THE EFFECTS OF GOAL SETTING ON VOLLEYBALL SERVING PERFORMANCE, ANXIETY, AND SELF-EFFICACY

By

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A Rationale for setting goals:

" If you are unaware of where

it is that you are headed

then you will probable end up somewhere else"

(Anon.)

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ABSTRACT

This study was designed to investigate the effects of goal setting on volleyball serving performance. Subjects were matched by experience and assigned randomly to either a goal group or instruction group. The goal group received a seminar on the effective implementation of goal setting and the instruction group received a seminar on the techniques and tactics of volleyball serving. Volleyball serving performance was assessed in both a test environment and in a game situation. The effects of goal setting on state anxiety and self-efficacy were also investigated. Results revealed no significant differences in serving performance between treatments. However, it was found through subsequent analysis that instruction group subjects who set goals without being prompted by the researcher to do so significantly outperformed instruction group subjects who did not spontaneously set goals. Furthermore when all subjects who set goals were grouped together, regardless of which treatment condition they were assigned to, and compared with non-goal setters, a significant between group difference then emerged. Goal group subjects improved their levels of self-efficacy more than did the instruction treatment. The goal group reduced its level of anxiety more than did the instruction group. The factors which contribute to the discrepancies between results found in sport related investigations and those obtained from studies conducted in business and laboratory environments are elaborated upon. The implications of the results for coaches and athletes are discussed. It was concluded that while effective procedures for implementing goal setting programmes in sport and exercise are being developed, further research is required before goal setting can be applied with any degree of confidence.

CHAPTER ONE: INTRODUCTION

Coaching philosophies and hence coaching styles differ dramatically within the coaching world, but it must be remembered that the primary focus of the coach is to motivate an athlete or group of athletes towards optimal performance. In order for an optimal performance to occur, both skill and motivation must be present (Straub, 1978). Goal setting is showing promise as one method of motivating athletes toward optimal performance (Barnett and Stanicek, 1979; Burton, 1989; Archer, 1987; Boyce, 1990 and Anderson, Crowell, Doman, and Howard, 1988).

Coaches, like manager who are their business sector counterparts, are constantly searching for ways to improve performance. Goal setting in industrial, organisational and academic environments has consistently indicated that specific, difficult, yet attainable goals produce better performances than do easily attainable goals, 'do your best' goals, or no goals (Locke, Shaw, Saari and Latham, 1981). Locke and Latham (1990a), in a comprehensive review of studies, have shown that positive goal setting effects have been evidenced in 90% of investigations.

With respect to the effectiveness of goal setting in sports and exercise, the results are rather more equivocal, with some studies reporting positive effects (e.g., Barnett and Stanicek, 1979; Burton, 1989; Hall Weinberg and Jackson, 1987) and others finding no differences. Barnett (1977) and Hollingsworth (1975) for example, found no difference between goal setting groups and control groups on a novel motor skill. Weinberg, Bruya and Jackson (1985) and Weinberg, Bruya, Jackson and Garland (1987), similarly found no significant differences between goal conditions and a "do your best" condition on an endurance task composed of sit-ups. Conflicting evidence has prompted researchers to investigate the unique factors associated with sport and exercise. Hence, as the number of

investigations in the sports setting have increased, so too have the recommendations about how to conduct goal setting research in this arena (Locke and Latham, 1985; Locke and Latham, 1990a; Locke, 1991; Weinberg and Weigand, 1993). The research paradigm for goal setting research in sport is still developing. The present research has attempted to incorporate many of the most recent recommendations into its design.

The goal setting literature suggests that training goals may be set for the development of strength, stamina and skill (Locke and Latham, 1985). The focus of much of the existing research in sport and exercise has been on endurance tasks, for example sit-ups and a hand dynamometer task (Hall Weinberg and Jackson, 1987; Weinberg, Bruya & Jackson, 1985; Hall and Byrne, 1988; Weinberg, Bruya, Garland and Jackson, 1990). Those studies which have set out about assessing the effects of goal setting on skill development, have mainly been longitudinal (e.g. Burton, 1989; Anderson, Crowell, Doman, & Howard, 1988; Stritcher 1989; Archer 1987; and Barnett and Stanicek 1979).

The appropriate application of the literature pertaining to motor skill learning is critical if the results emerging from goal setting research are to provide maximum benefits for the user in a sports setting.

A significant body of literature suggests that both anxiety and self-efficacy should have a significant impact on volleyball service performance. The relationship between anxiety and performance has often been reported as being curvilinear (Duffy, 1957; Martens and Landers, 1970). Optimal performance occurs at moderate levels of anxiety with both very high and very low levels of anxiety being associated with low performance levels. However, the relationship between anxiety and volleyball serving performance has been shown to be negative and linear (Cox, 1986; Lanning & Hisanaga, 1983). Higher levels of anxiety are associated with low levels of performance, whereas high levels of self-efficacy relate positively with high levels of performance (Feltz, 1982; Feltz

and Mungo, 1983; Miller and McAuley, 1987).

The skill assessed in the present study was the volleyball serve. Motor skills can be classified in terms of the extent to which the environment is predictable during the performance (Poulton, 1957). At one end of the continuum are closed skills, in which the environment is predictable. At the other end of the continuum open skills are performed in an environment which is constantly changing. The serve was chosen for several reasons. As the only closed motor skill in volleyball the serve is the skill most suited to this type of assessment. The serve is also the first opportunity to put pressure on one's opponent. In the first four sets of a volleyball match only the serving team is able to score points.

Hence, service performance suggests itself to be an extremely important volleyball skill. In volleyball serving efficiency ranks third behind spiking and blocking when correlated with final standings in elite competitions (McCutcheon, 1990).

The remainder of this thesis summarises a research project employing the volleyball serve as the focal behaviour. Chapter Two contains a review of the literature. The rationale and hypotheses are detailed in Chapter Three. This is followed in Chapter Four by an outline of the method. The results are presented in Chapter five and discussed, along with the implications for coaches and players, in Chapter six.

CHAPTER TWO: REVIEW OF THE LITERATURE

2.1. INTRODUCTION

The review of the literature is divided into seven sections. With the exception of the second section (goal theory and core findings), the review of the literature has a deliberate bias toward those studies which have focused on sport and exercise. The third section is devoted to the literature pertaining to goal setting studies in sport and exercise. Section four deals with the implementation of goal setting programmes. Self-efficacy and anxiety are the focus of sections five and six respectively. Self-efficacy has been found to be one of the psychological mechanisms operating in the goal setting process (Bandura, 1982 ; Feltz, 1982). Anxiety has been shown to affect task performance over a wide range of activities (Duffy, 1959; Martens and Landers, 1970).

The research relevant to motor skill learning is reviewed with the intention of applying the findings to ensure that appropriate drills are implemented during the skill learning phases of the study. Finally, the review of the literature is summarised before the rationale behind the study is outlined.

2. 2. GOAL THEORY/CORE FINDINGS

A substantial portion of the theory and core findings that follow have been derived from the comprehensive work of Locke and Latham (1990a). Social learning theory, as expounded by Bandura (1977), has been used to provide an understanding of the psychological mechanisms underlying goal setting.

Motivation is an internal construct and as such cannot be directly observed but must be inferred. Locke's (1968) theory of goal setting deals with the relationship between goals and performance on a task. An individual's conscious intentions are said to regulate the actions that follow. Goals provide motivation by directing behaviour, making behaviour more persistent,

intensifying the desired behaviour and promoting continued strategy development (Komaki, Barwick, & Scott, 1978).

Goal setting theory has evolved incrementally based on the core question; "Do goals affect action? ". The findings of hundreds of studies have been synthesised to mould the theory put forward by Locke and Latham (1990a).

Explanations concerning human behaviour exist on different levels (Ryan, 1970). Much of the research pertaining to goal setting theory provides an immediate or first level explanation of action. Goals can be viewed as initiators and regulators of human action. The second level of explanation of action accounts for the goals themselves by reference to other motivational concepts as well as events and conditions outside the person. The third level of explanation attempts to identify the sources and roots of the individual's values, motives, and personality. The majority of this literature review concerns itself with the first level of explanation with some reference to the second level.

The psychological mechanisms through which goals create motivation effects has received moderate attention. Behaviourists claim that behaviour is regulated automatically by the environment and that individual behaviours are controlled by past reinforcements. Thus, in terms of goal setting any adjustments in behaviour are attributed to the reinforcing quality of the feedback given to the individual. The behaviourist approach has severe limitations if one's aim is to understand the underlying mechanisms driving goal setting. Locke and Latham (1990a) argue that the explanation that " behaviour changed because it was reinforced, simply cuts off the search for the actual causes of the action " (p. 4)

Social leaning theory postulates two cognitively based mechanisms of motivation which serve as the roots of human action. Cognitive motivation can be sourced in two ways first by assessing the consequences of foreseeable outcomes, and second from self-evaluative reactions to internally set

performance standards. These performance standards are at least partially derived from self-percepts of efficacy (Bandura, 1977).

Goals and performance feedback by themselves lack an essential comparative ingredient. In order for motivation levels to change, both performance feedback and goals must be present (Bandura and Cervone, 1983). Goals gain their motivating power through the process of cognitive comparison. Self-evaluation to a standard and self-efficacy are the mechanisms which fuel motivation and hence are the underlying cognitive mechanisms operating during the goal setting and goal attainment process.

Using a strenuous ergometer task, Bandura and Cervone (1983) found that the "combining of performance information and a standard had a strong motivational effect, whereas neither goals alone nor feedback alone affected changes in motivation level".

Commitment to the goal must be present in order for goals to affect performance. The level of commitment is influenced by several factors. Commitment is high when there are values associated with attaining the goal. Public commitment is more effective than private commitment (Hollenbeck, Williams, and Klein, 1989). A surprising finding is that assigning goals to performers leads to the same level of commitment and performance as letting the performer set their own goals. Locke and Latham (1990b) have identified several factors which explain the effectiveness of assigned goals. Authority figures have a major influence over a subject's, athlete's or subordinate's compliance (Milgram, 1969). The act of assigning goals implies that the supervisor is confident that the performer can reach the goal; this, in turn affects the performers self-confidence (Salancik, 1977). Assigned goals propose a challenge and help to define the standards that people use to attain self-satisfaction.

Goal setting theory asserts that there is a positive linear relationship

between degree of goal difficulty and performance. The robust and reapplicable nature of this finding is summarised by Locke and Latham (1990a). They found that 91% of goal difficulty studies (n = 192) have shown a positive linear goal difficulty / performance relationship. The accepted explanation of the goal difficulty function is that difficult goals lead to greater persistence and effort than do easy goals provided that the goals are accepted.

Locke and Latham (1985) recommend that performers should be encouraged to set goals which are realistic and therefore attainable. If goals are too easy or too difficult one might expect direction, intensity, and persistence of behaviour to decline. It has also been claimed that the setting of unrealistic goals should be avoided as resulting success is less likely, thereby causing athletes to experience failure and perceive that they are "not good enough" (Botterill, 1980). If repeated failures and the easy achievement of goals do produce a decreases in motivation one would expect that some type of inverted-U relationship between goal difficulty and performance to emerge. Research, however, has indicated that no such relationship arises. The literature indicates that subjects with easy goals often set new goals when the reach their assigned goals (Locke and Latham, 1990a). Subjects who are set virtually impossible goals perform as well as subjects who are assigned difficult but realistic goals (Weinberg, Garland Bruya, and Jackson, 1990; Weinberg, Fowler, Jackson, Bagnall, and Lawrence, 1991).

Becker (1978) provides an example of one of the many studies which have supported the contention that a positive relationship exists between goal difficulty and performance. Eighty families were assigned goals to reduce electricity consumption during the summer. A 20% reduction goal (difficult) was given to half of the group, the other half was given a 2% reduction goal (easy). The group with the difficult goal conserved significantly greater amounts of energy than did the group who was assigned the easy goal.

Goals which are specific and difficult lead to higher levels of performance

than do "do your best goals". Locke and Latham (1990a), in a summary of the literature, found that 90% of studies (n = 201) have shown significant results. This finding indicates that if challenging goals are set in explicit terms, subjects are likely to perform better than if the goal is stated in general terms.

Tubbs (1986), Wood Mento and Locke (1987), and Mento Steel and Karren (1987) have conducted meta-analyses in the area of goal setting and task performance. Strong support was obtained from all three studies for the goal difficulty and goal specificity components of Locke's (1968) theory of goal setting. Wood Locke and Mento (1987) also found that goal setting effects were strongest for easy tasks and weakest for more complex tasks.

Despite the considerable body of evidence which has accumulated supporting the positive effect of goal setting on performance in the industrial and organisational setting, empirical research on goal setting on sport and exercise samples has yielded equivocal results.

2. 3. SPORT AND EXERCISE GOAL SETTING STUDIES

Research in the area of sport and exercise has investigated the general effects of goal setting on performance. Other studies have assessed performance in relation to goal difficulty, goal proximity, goal specificity, goal participation, and personality differences. The problem of control group subjects spontaneously setting goals is also discussed. The following review of goal setting studies in sport and exercise is not exhaustive, but is intended to provide a summary of the research that has been conducted in the area.

Mace (1935; cited in Locke and Latham, 1990a) conducted one of the first studies investigating goal setting in the psychomotor domain. He found that subjects who had been assigned the difficult goal of improving their scores by 25% per day, improved their scores more quickly than did subjects who were instructed to improve by only 5% per day.

Miller and McAuley (1987) investigated the effects of goal setting on performance and self-efficacy using a basketball free throw performance task. Subjects were randomly assigned to either goal setting training or skill instruction only treatments. No significant between group performance differences emerged though the goal training group exhibited a higher degree of consistency. Miller and McAuley suggested that goal setting training may provide a programme to assist athletes in stabilising their performances. An ability ceiling effect (free throw success rate of 68%) was believed to have contributed to the absence of a performance effect.

Archer (1987) implemented a season-long goal setting programme with a high school girls' basketball team. Subjects established both short term (weekly) and long term (season) goals. Goals were set for both training and games. Despite the team experiencing a win / loss record of (3-17), all 13 team members experienced success during the season. Questionnaire data revealed that 12 of the 13 players agreed that the goal setting programme helped them and "numerous positive comments indicated a high morale level".

Stitcher (1989) investigated the effect of goal setting on the performance of a Men's Division III lacrosse team. Twenty four subjects were divided into a goal setting group or a "do your best " control group. Subject performance was rated over five different skills during the course of a 16 game season. Results revealed no between-group differences in performance. Questionnaire data revealed that the goal setting subjects felt that their goals were not realistic and that it was increasingly difficult to reach their goals as the season progressed.

Boyce (1990) reported that subjects who were assigned difficult goals performed better at a shooting task than did a "do your best " control condition. However, no significant differences emerged between difficult and moderate goal groups.

Weinberg, Fowler, Jackson, Bagnall, and Bruya (1991) assessed the effect of

goal difficulty on motor performance using a basketball shooting task. Subjects were randomly assigned to one of four different goal conditions, ranging from easily attainable goals through to highly improbable goals. A do-your-best goal condition was also employed. No significant between-group differences were reported. All subjects stated that they accepted their goals and had tried hard to reach them.

Goal proximity has received little attention within the area of sports psychology. Locke and Latham (1985) have hypothesised that using short term goals plus long term goals will lead to better performance than using long term goals alone. Bandura (1986) has argued that short term goals are far more effective as they provide more immediate feedback concerning an individuals progress.

Of the sport and exercise research that has been conducted on goal proximity Hall and Byrne (1988), using a sit-up task, found that the implementation of short-term goals in conjunction with long-term goals lead to better performance than using long-term goals or short-term goals alone. Tenenbaum, Pinches, Elbaz, BarEli, and Weinberg (1991), who also used a sit-up task, found a similar result. Subjects were assigned to one of five goal setting conditions: (a) short-term goals, (b) long-term goals, (c) short-term and long-term goals, (d) do your best goals, and (e) no goals. Results indicated that the short plus long-term goal group exhibited the greatest increases in performance. The short-term and long-term groups also displayed significant improvements in performance.

Burton (1989) assessed the effects of goal specificity on seven different basketball skills. He found that subjects who set specific goals outperformed subjects who set general goals on complex tasks, but no significant differences emerged on simple or moderately complex tasks.

Kirschenbaum (1985) claims that goals which are too specific restrict

individual choice and hence debilitate the self regulatory processes which are required to attain goals. Kirschenbaum suggests that moderately specific and flexible planning may be the best methods for attaining goals, though the degree of specificity and flexibility is dependent on both task and population. Kirschenbaum advocates that subjects participating in goal setting investigations should be offered more open choices of goals, as "artificial" goals may not only restrict choice but have little intrinsic motivation.

The belief that goals are best when they are "owned", and hence set by the athletes, may be unfounded has been claimed by Dorsett, Latham and Mitchell, (1979) and Latham and Yukl (1976). Conventional wisdom would argue that commitment and therefore better performance is best achieved by allowing people to have their say. Assigning goals, however, provides an indirect means of influencing task self-efficacy especially when goals are high. Although no statistically significant differences surfaced, in a study which assessed job performance, participative goal setting was superior to assigned goal setting due to the fact that the former led to the setting of more difficult goals (Dorsett, Latham and Mitchell, 1979).

In the domain of sport and exercise Wraith and Biddle (1989) investigated the effects of goal participation using a ball throwing task. Results indicated that participation in goal setting had no effect on throwing performance.

The effects of personality on specific goal setting has been investigated by Tu and Rothstein (1979) using improvement in jogging performance as the dependent variable. Forty female junior high school students were classified as having dependency-motive orientation or independency-motive orientation. Participants who were submissive, who had a group orientation and were group dependent were classified as being dependency motivated, whereas participants who were dominant, individualistic and self-sufficient were classified as being independently motivated. The researchers concluded that independency-motive

orientation subjects improved at a significantly faster rate when they set their own goals, while dependency-motive orientated subjects improved significantly faster when goals were teacher imposed.

Burton (1984) in a study with competitive swimmers, investigated the interaction between personality traits and states of goal setting. Burton investigated trait self-confidence (a stable personality characteristic which provides a measure of the tendency to be self-confident in a competitive setting), and state self-confidence (the present state of self-confidence) to determine how these personality traits relate to setting realistic or unrealistic goals. Burton's results indicated that the swimmers who set realistic goals were more confident and less anxious (state) than those swimmers who set unrealistic goals.

Feedback is an essential ingredient for goal directed behaviour to occur. Feedback provides both behavioural and cognitive information. Knowledge of results indicates the degree of progress which is being made toward the goal and provides the individual with efficacy information pertaining to the goal .

Previous goal setting research in the sporting environment (Weinberg, Burya and Jackson,1985; and Hall and Byrne, 1988; Stitcher, 1989), have identified the problem of control group subjects spontaneously setting goals. One problem that consistently confronts researchers examining goal setting in sports settings is that knowledge of results is often readily available to performers of physical activities. In the research environment this leads to no-goal subjects using performance feedback to set goals of their own. Weinberg, Burya and Jackson (1985) found using a sit-up performance task that a large majority (83%) of control ("do your best") subjects had, without prompting, set their own specific goals for future performance. A similar percentage (88%) was reported by Weinberg, Fowler, Jackson, Bagnall and Bruya (1991).

Hall and Byrne (1988) implemented a goal setting programme on a one minute sit-up task. Results indicated that those subjects who set goals or who

had goals assigned outperformed the "do your best " control group. Hall and Byrne's discussion identified the problem of control subjects setting their own goals. It was also noted that competition between subjects affected the results.

The failure of studies in sport and exercise to consistently show positive goal setting effects may, in part, be attributable to the characteristics of the subject population. Sports people are likely to be more competitive than the general population. Hence the motivational effects elicited from the implementation of a goal setting treatment are likely to be employed by the competitive sports people who are used in goal setting research conducted in sport and exercise studies.

Whilst goal setting shows promise as a motivational tool for athletes and coaches there is a real need to understand all the variables which impact on this very complex process. The implementation process, the level of self-efficacy and the degree of state anxiety are three variables which impact on the goal setting performance relationship.

2.4. IMPLEMENTATION OF GOAL SETTING PROGRAMMES

Providing study participants with information concerning the success of previous goal setting studies and the dimensions of goal setting are helpful in assuring athletes use goal setting effectively to improve performance (Miller, 1987; Barnett and Stanieck, 1979; Burton, 1984 and Archer, 1987).

Barnett and Stanieck (1979) found that subjects exposed to weekly 10 minute teacher lead conferences on how to set goals performed significantly better than a control group on an archery task. Both groups received task specific skill instruction.

Burton (1984) implemented a season-long goal training programme for a group of collegiate swimmers. The goal group athletes were taught how to set

appropriate goals. Their swimming performances improved significantly more than did the performances of a control group.

Athletes have the tendency to establish unrealistic and inappropriate goals (Harris & Harris, 1984). Hence the involvement of a coach in the goal setting process can help the athlete to set realistic and appropriate goals. Involving the coach in the goal setting process can also facilitate communication between coach and athlete which will help the coach to find out how accurately the athlete evaluates his or her abilities.

Botterill (cited in Matin and Lumsden, 1987, p. 258) has identified the benefits of pre-season goal setting. He states that pre-season goal setting can contribute to increased commitment and help enhance motivation toward group goals. In addition, pre-season goal setting provides the additional benefits of improving athletes' self-confidence, group morale, communication and has the ability to help eliminate problem behaviours

2.5. SELF EFFICACY

Bandura (1982) has argued that self-efficacy offers a partial explanation for the effects of goal setting. Self appraisals of task efficacy are proposed to be influential determinants of performance on the task. Simply stated, self-efficacy is defined as a personal judgment of 'how well one can execute courses of action required to deal with prospective situations' (Bandura, 1982, p. 122). If desired internal performance standards match perceived level of mastery satisfaction, interest and motivation for participating in that activity will increase. Conversely, if desired personal performance standards do not match perceived level of mastery satisfaction, interest and motivation for participating in that activity will decline. Understanding the self efficacy/performance relationship within the goal setting environment is important for obtaining a comprehensive view of the goal setting process.

Bandura and Cervone (1983) found that if subjects were highly dissatisfied with a sub-standard performance but had a strong perceived self-efficacy for goal attainment there was an increase in effort. This results suggests that those subjects with low levels of self-efficacy are discouraged by failure but those individuals who have confidence in their capabilities intensify their efforts following failure.

Bandura (1977) hypothesised that self-efficacy is affected through four major sources: performance accomplishments, vicarious experience, physiological states and verbal persuasion. Several studies have shown that increases in self-efficacy expectations are positively related to increases in performance in sports settings.

Feltz (1982) and Feltz and Mungo (1983) reported that self-efficacy served as a strong predictor of diving performance on early trials; however with more experience, past performance assumed a greater predictive role than self-efficacy for future performances.

Lee (1982) found that athletes' performance expectations were more accurate predictors of competition performance than were previous competition scores. Baring and Able (1983) assessed the tennis performance of 40 active players. Self-efficacy beliefs and not response-outcome expectations were consistently and positively related (average $r = + 0.53$, $p < .001$) to the 12 aspects of tennis performance which they measured.

Mahoney and Avener (1977) found that of the 12 finalists in the 1976 U.S. Men's Olympic team gymnastics competition, those athletes who reported experiencing occasional doubts about their abilities tended to perform more poorly during the event. Specifically, actual performance correlated positively with pre-event self-confidence.

Miller and McAuley (1987) provide partial support for a positive self-efficacy-performance relationship. Self-efficacy was correlated more highly with

performance than was past performance. Furthermore, the efficacy-performance relationship was much stronger for the goal training group than was the case for the instruction only group.

Burton (1984), in a goal setting study, found that collegiate swimmers who began the season with the lowest self-percepts of ability improved their self-efficacy more than those swimmers with high initial self-ratings of ability. These results may indicate the positive effects of goal setting on self-efficacy. An alternative explanation may be that there are ceiling effects for self-efficacy statements for highly skilled swimmers.

Thus, there is some support for the contention that the cognitive-behavioural link is enhanced through goal setting and that self-efficacy is the underlying mechanism which strengthens the link between cognition and performance.

2.6. ANXIETY

An accurate profile of a successful elite performer would undoubtedly include "the ability to perform under pressure". The pressure to perform can often result in athletes experiencing maladaptive levels of anxiety.

Individuals differ in their reactions to a perceived threat in a particular situation. This is referred to as 'state' anxiety. State anxiety should be contrasted with trait 'anxiety', which is a characteristic disposition (Hall and Purvis, 1984). Thus trait anxiety can best be described as a person's tendency to experience state anxiety, whereas the actual experience of perceiving stress is called state anxiety (Martens, 1987, p.94).

Assessing the relationship between state anxiety and performance is important if a full understanding of the factors influencing performance is to be obtained. The inverted-U hypothesis has been used to explain the relationship between competitive state anxiety and athletic performance (Duffy, 1959; Martens

and Landers, 1970). This hypothesis states that at very high and very low levels of anxiety, performance suffers. Performance benefits most at moderate levels of anxiety. This hypothesis has a great deal of utility for coaches and athletes.

Klavora (1977) investigated the relationship between state anxiety and performance of a boys' high school basketball team. State anxiety was measured prior to each game and performance was ascertained by a coaches' rating across 8-14 games. Results supported the inverted U-relationship between pre-competitive anxiety and basketball performance.

In a field study Cox (1986) measured the Competitive State Anxiety of 157 female athletes using the Competitive State Anxiety Inventory developed by Martens, Burton, Rivkin and Simon (1980) prior to each 15-point game. Volleyball serving performance was measured throughout the tournament. Each skill attempt was rated on a three point scale (0 = complete failure, 2 = complete success and a score of 1 for any situation ranging between success and failure). The relationship between volleyball serving performance and anxiety was shown to be linear and negative in the game situation. This suggests that as competitive state anxiety increases serving performance decreases. Cox's findings are similar to those found by Weinberg and Genuchi (1980). They observed that low levels of state anxiety were conducive to high levels golf performance and that increases in state anxiety lead to declines in performance levels.

Lanning and Hisanaga (1983) investigated the relationship between systematic training in the reduction of competitive anxiety and volleyball service performance. Twenty four female college athletes participated in the study. The Sport Competition Anxiety Test (SCAT) developed by Martens (1977) was used to measure the athletes' level of competition anxiety. Following pre-testing of service performance, players were randomly assigned to either the treatment or control groups. The treatment consisted of seven 30 minute sessions of

relaxation training based on Jacobson's progressive relaxation methods and Tutko and Tosi's (1976; cited in Lanning and Hisanaga, 1983) getting loose and breathing easy segments of the sports' psyching programme. Results indicated that competition anxiety in female athletes can be reduced by systematic training and anxiety management. Lanning and Hisanaga also found that volleyball service performance increased following the training thus suggesting that lower levels of anxiety are conducive to higher levels of volleyball service performance.

Bandura's self-efficacy theory postulates that anxiety and self-efficacy are negatively related. Increases in state anxiety are associated with decrements in task self-efficacy. Competing with Bandura's self-efficacy Eysenck (1978) suggests that anxiety reduction mediates behaviour change and that self efficacy cognitions are merely coeffects of the reduction in anxiety.

2.7. MOTOR SKILL LEARNING

Two variables are of primary importance in the learning of motor skills. The most obvious and most important is practice. Clearly performance will improve and become more consistent if there are more practice trials. The length and duration of practice periods is a critical variable in the learning of motor skills. Learning is best achieved by having a greater number of shorter practice periods rather than having fewer longer practice periods (Badderley and Longman, 1978).

The second most important variable affecting motor skill learning is "Knowledge of Results" (KR). Knowledge of results can be defined as the feedback related to the nature of the result produced in the environment (Schmidt, 1982). Knowledge of Results enhances learning by providing implicit "instructions" which in turn guide the learner toward the proper response (Adams, 1971). Using a linear positioning task, Bilodeau, Bilodeau, and

Schumsky (1959) assessed the effects of knowledge of results on motor skill learning over a 20 trial period. They divided subjects into four groups. The group which received KR after each trial showed an initial rapid decrease in errors followed by a more gradual decrease. On the other hand, the group which received no KR displayed no change in performance. The two other groups which received KR for two and six trials respectively before having KR removed improved in trials which followed KR but improvement stopped when KR was withdrawn.

In order for learning to occur the performer must practice and they must receive knowledge of results. The type of practice which is best is an area of considerable debate. Two contrasting positions have evolved in attempts to answer the question: " What should be practised to facilitate later retention? ". The first is known as the specificity of learning principle the second is called the variability of learning hypothesis.

The specificity of learning principle proposes that motor skills are specific and only superficially resemble other motor skills. The concept of specificity as applied to motor skill learning has been present since the 1960's. Henry (1960) proposed the idea that motor programmes are stored in a "memory drum". A fundamental aspect of the theory developed by Henry is that only specific coordinations are stored. Henry went on further and wrote:

> *"It is no longer possible to justify the concept of unitary abilities such as coordination, and agility since the evidence shows that these abilities are specific to the task or activity ' "*
>
> (Henry, 1960; p.126).

If we accept the concept of specificity then we can assume that there is minimal transfer of learning between tasks. Two major points emerge from the research pertaining to transfer of learning. First, transfer from one task to

another is small unless the tasks are practically identical. Second, the amount of transfer depends on the similarity between tasks (Schmidt, 1975).

Breaking down a skill into parts and then progressively putting the parts together so that the performer eventually performs the skill in its entirety has, for a long time, been accepted as a valid method of teaching a motor skill. Indeed, progression has been a near sacred principle in physical education. However, evidence indicates that the faith may be misplaced. It is now widely accepted that motor programmes are specific and as such need to be practised in their entirety. Nixon and Locke (1973) summarised the research in this area and concluded that in over 30 whole/part studies not one study showed unambiguous superiority for experimental methods involving part or progressive part methods of motor skill instruction. They stated that:

> *" Progressions generally appear not to be significant factors in learning many motor skills. The evidence with regards to specificity, transfer and whole practice is conclusive in encouraging the whole method of teaching when attempting to achieve motor skill learning".*
>
> (Nixon and Locke, 1973; p. 1216)

The specificity of learning hypothesis states that the environmental conditions surrounding learning of a movement should simulate those in which the task will eventually be performed (Schmidt, 1982). Applying this theory to the objective of increasing the efficiency of volleyball service performance, it is important that the training of the serve as much as is possible simulates the serve in the game situation.

The alternative motor learning theory is called the variability of practice hypothesis and was formulated by Schmidt (1975). Schmidt posits that the learner does not store the specific consequences of each movement but, rather,

abstracts the the sensory information along with knowledge of results to form a schema. It is proposed that the strength of the schema is directly related to the variability of practice that is received by the learner in a specific schema class.

Shapiro and Schmidt (cited in Schmidt, 1982; p. 292), reviewed the literature pertaining to the learning of a closed task (for example, the volleyball serve). They found that variable practice is as effective as specific practice in producing learning of a skill.

2.8. SUMMARY

The positive effects of goal setting represent one of the most replicated of research areas conducted in psychology. The validity and utility of goal theory is attested by meta analyses, conclusive reviews, comparative assessments and peer evaluations.

Two major conclusions are reported in the literature. First, specific difficult goals are more effective in enhancing performance than no goals, easy goals or "do your best" goals. Secondly, knowledge of performance must be available to the performer in order for the setting of goals to be effective in improving task performance. Support for goal setting having a positive effect on performance in the area of sport and exercise is less forthcoming. The spontaneous setting of goals by control subjects, the availability of feedback, and the competitive characteristics of sports people are all plausible explanations for the failure of many of the goal setting studies in sport and exercise to detect performance differences between goal setting treatments and control treatments.

The literature suggests that self-efficacy and anxiety are also affected during the goal setting process. Self-efficacy has been shown to be a good predictor of future performance and to be positively affected by goal setting. Levels of anxiety have been shown to be reduced by implementation of goal setting procedures.

Finally the motor skill literature suggests that practice conditions should as much as is possible simulate the performance of the actual task.

CHAPTER THREE: RATIONALE AND HYPOTHESES

3.1. RATIONALE

The need to execute different tactics week by week is a major concern of coaches operating in a weekly league competition. Increasing an athlete's consistency in the training environment only serves as a means to an end. The major goal of all training is to increase skill in the game situation. The test procedure and training drills used were, as much as was possible, designed to adhere to the specificity of learning principles. It is acknowledged, however, that the test and training environments fall short of a realistic game situation. The most notable variable to be missing is the degree of anxiety often experienced by athletes during a game. The present study realises the need to assess the relationship between test service performance and serving efficiency in the game situation.

The present study was designed on the assumption that coaches might well be interested in whether the implementation of a one week goal setting programme can produce a significant change in the athletes' behaviour over and above purely training a "new" skill without a formal goal setting programme.

The general aim of the present study was to assess the effect of goal setting on performance change in a competitive athletic environment over a nine day period. Given the class of athlete with which this study investigated (elite performers), and the fact that the athletes were familiar with the skill prior to the intervention, the goal setting programme is designed to "focus" the athlete, aiming to enhance the consistency of the performance. The generalizability of test service performance to the game situation was also assessed. To support these major issues, self-efficacy, anxiety and additional goal setting were investigated.

The specific aims of the present investigation were threefold: a) to

measure the effectiveness of a goal setting programme versus no goal/instruction programme on volleyball service performance; b) to assess the effects of a goal setting training programme on self-efficacy; and c) to investigate the relationship between state anxiety and service performance. One expectation is that goal group subjects may, in addition to increasing self-efficacy, decrease anxiety more than control subjects. Further analyses were conducted from questionnaire data concerning the effects of additional goal setting, goal commitment, goal difficulty, perception of experimenter concern and effort expenditure. Specific hypotheses are detailed below.

3.2. HYPOTHESES

Seven hypotheses were examined.

Hypothesis 1: Effects of Goal-setting or Instructions on serving performance

Athletes with specific self-set performance goals will improve serving performance significantly more than will athletes with do-your-best goals (the instruction only group) when tested for service performance in a controlled test.

Hypothesis 2: Generalizability of test serving performance to the game situation

There will be a positive linear relationship between game service score and test service score for both treatments conditions.

Hypothesis 3: Anxiety and serving performance.

3a) There will be a negative linear relationship between anxiety and service performance.

3b) Game situation levels of anxiety will be significantly greater than those experienced in the test environment.

3c) Goal group subjects will decrease anxiety more than will instruction only group subjects.

Hypothesis 4: Self-efficacy

Athletes who set specific performance goals will show greater increases in self-

efficacy than will athletes in the instruction only group.

Hypothesis 5: Additional goal-setting

5a) Those subjects in the goal group who set additional specific performance goals will improve significantly more than those who do not set additional specific performance goals.

5b) Those subjects in the instructional group who do set specific performance goals will improve significantly more than those who do not set specific performance goals.

Hypothesis 6: Goal commitment

There will be a positive linear relationship between goal commitment and improvement in serving performance for goal group subjects.

Hypothesis 7: Goal difficulty

There will be a positive linear relationship between goal difficulty and improvement in serving performance for goal group subjects.

CHAPTER FOUR: METHOD

4.1. SUBJECTS

The subjects for this study were 16 male and 20 female (n = 36) elite volleyballers. Thirty four of the subjects competed in a National Division One Zone League. The remaining two subjects were under-age provincial representatives.

Of the zone league participants, subjects ranged in experience from international (n = 10) through to first year in the zone league (n = 4). Participants had a mean zone league experience of 3.6 years. Years of playing experience ranged from 3 to 20, with a mean of 7.3 years.

4.2. DESIGN

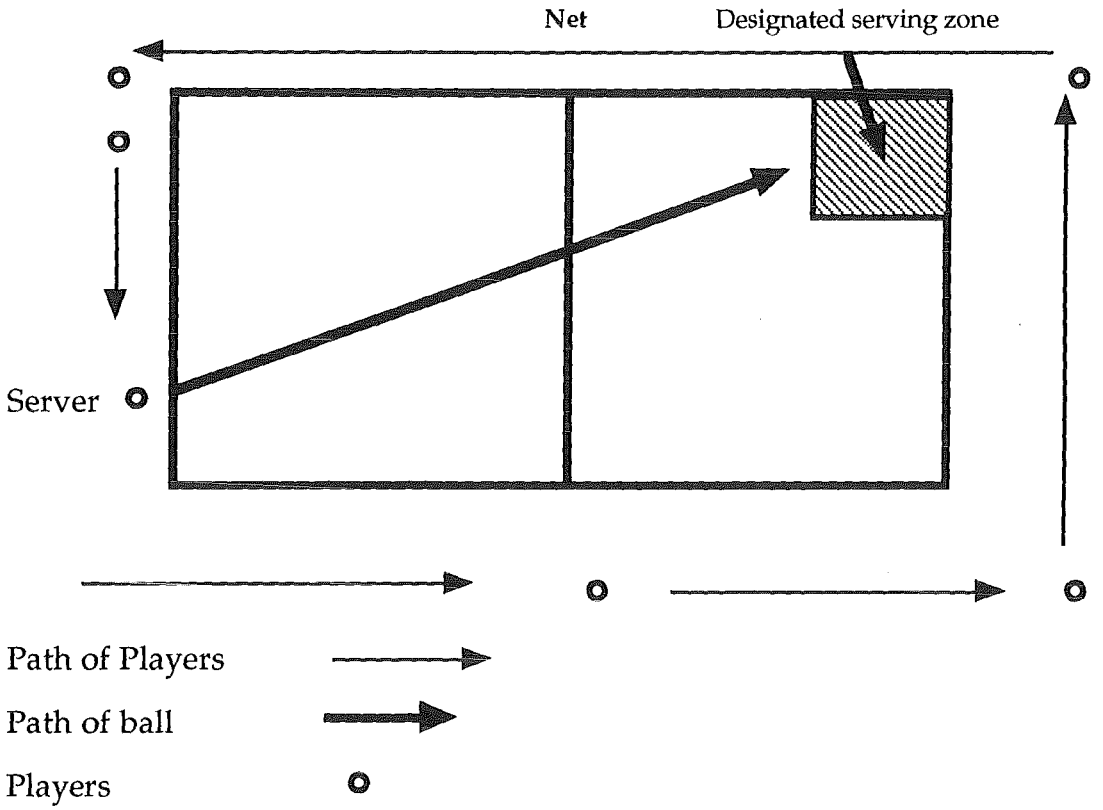
The study was primarily concerned with an analysis of the effects of goal setting in relation volleyball serving performance, self-efficacy and anxiety. Subjects were randomly assigned to either a goal setting treatment or to an instruction only treatment. A number of (2 x 2), groups by trials, ANOVAs with repeated measures were used to assess the effect of goal setting on three dependent variables: serving performance (test), level of self-efficacy (test only), and anxiety level (game and test).

4.3. PROCEDURE

Two weeks prior to the investigation coaches from six teams were contacted and their co-operation was secured in two areas; first, with regards to implementing a specific service training drill into two of their teams regular practice sessions during the week of the study, and second to encourage players in their team to serve into a designated zone of the court (see figure 1) during the targeted games.

During the week before the commencement of the study, six zone league teams were approached individually and volunteers were asked for. At this stage, all prospective subjects completed both the pre-study questionnaire (Appendix A) and the informed consent form (Appendix B). Subjects were matched by experience and then randomly assigned to either a goal-setting (G-S) or instruction only (I) treatment.

Figure 1: Volleyball Court showing the designated serving zone and the service practice drill.



Subjects completed the Competitive State Anxiety Inventory: Game (CSAI: Game; Appendix C) immediately following the game in which their serving performance was recorded. On the day following the recording of game serving performance, subjects were tested for their ability to serve the ball into the designated zone in a controlled experimental setting. Each subject served 20 balls consecutively attempting to land them in the designated serving zone (see figure one). Prior to the serving test, subjects completed the Self-Efficacy Questionnaire (Appendix D) and immediately following the test, subjects completed the Competitive State Anxiety Inventory: Test (CSAI: Test; Appendix E).

Both groups received a 20 minute seminar immediately following the first testing phase of the study. The G-S group was informed of the various mechanisms and dimensions of goals and how to most effectively establish their serving goal for next week's testing. For an outline description of the goal-setting seminar see Appendix F. The G-S group completed Goal Setting Questionnaire One (Appendix G). Before ending the session, G-S subjects were given brief instructions on serving tactics and techniques.

The instruction group received more extensive technical and tactical serving information during its seminar (see Appendix H). The investigator considered both groups to be adequately versed in the skill and believed that the total time spent with the two groups should be balanced. The Instruction group completed Serving Effort/Performance Questionnaire One (Appendix I).

Immediately following the seminars the subjects were given the first of four 20 minute serving practice sessions. Serving practice sessions two and four took place during normal team training times on Tuesday and Thursday. On Wednesday all subjects were brought together for the third serving practice session. Team coaches ran the practice sessions on Tuesday and Thursday. The Wednesday session was run by the experimenter. Coaches were instructed not to give any technical feedback to subjects and to run the serving drill (see figure 1) early on in the training session to avoid the effects of fatigue. The same serving drill was used for all practice sessions.

Post intervention procedures for evaluating game service performance and test service performance were exactly the same as those followed during the baseline phase of the study. CSAI: Test, CSAI: Game and Self-Efficacy were again collected and subjects in the G-S and I group completed Goal-Setting Questionnaire Two (Appendix J) and Serving Effort/Performance Questionnaire Two (Appendix K) respectively. A summary of the procedure is given in table one.

Table one: Summary of procedures

	Pre-study	CSAI game	Game serve performance	CSAI test	Self-efficacy test	Serving test one	Serving Instructio Questionnaire/ Seminar	Goal setting Questionnaire/ Seminar
Goal-setting Group	✓	✓	✓	✓	✓	✓		✓
Instruction only Group	✓	✓	✓	✓	✓	✓	✓	

	4 practise sessions	Game serving Perf.	CSAI Game	Self-efficacy 2	Serving Test two	CSAI Test	Serving effort . Quest.	Goal-Setting Quest.
Goal Setting Group	✓	✓	✓	✓	✓	✓		✓
Instruction only Group	✓	✓	✓	✓	✓	✓	✓	

4.4. DEPENDENT MEASURES

Game serving performance . Each subject was encouraged to serve into the designated zone of the court during the targeted games on consecutive weekends.

Raters underwent a brief training and practice period prior to the commencement of the study. Six raters were used during the course of the study. Due to rater availability constraints, for nine of the twelve games only one rater was used. Three games were randomly selected to assess inter-rater reliability among two raters and produced a reliability coefficient of $r = 0.85$. Raters were required to make a subjective assessment of whether or not the ball would have landed (when the ball was received) or did land (when the ball was left by the receiver) in the designated serving zone. Raters were also required to assess whether or not the server was attempting to serve the ball into the designated zone.

Scoring system

N.A. No attempt was made to serve the ball into the designated zone.

0 Ball lands in the court or is taken by the receiver but was not going to land in the designated zone.

1 Ball lands or would have landed in the designated zone had the receiver not have taken the ball.

- 1 A fault is served.

Test serving performance . Each subject served 20 balls consecutively having been instructed to attempt to land every ball within the designated zone. Previous studies which have used volleyball serving performance as a

dependent variable have used the American Association of Health, Physical Education, Research and Dance (AAHPERD) serving test (French, Rink, Rikard, Mays, Lynn, and Werner, 1991; Wilkinson, 1991). This test requires subjects to serve over the net to various areas of the court associated with point values. Subjects score more highly for serves that land nearer the base and the side lines. As with the test used in this study serves are served consecutively. The scoring system was the same as that used during the assessment of game serving performance.

State Anxiety Measure . To test subjects' state anxiety in both the game situation and the testing environment the Competitive State Anxiety Inventory (CSAI) developed by Martens, Burton, Rivkin, & Simon (1980) was employed. The CSAI is a short form of Spielberger, Goruch and Lushene's (1970; cited in Martens, Vealey, and Burton, 1990) 20 item State Anxiety Inventory. The reliability and validity for the CSAI in competitive sport settings has been well documented (Gruber and Beauchap, 1979; Huband and Mckelvie,1986). According to Gruber and Beauchamp (1979) the CSAI is adequately valid and suitable for repeatedly measuring state anxiety in a competitive sport environment. Gruber and Beauchamp reported internal consistency ranging from 0.74 to 0.94. The test-retest coefficients were all nonsignificant ranging from -0.39 to + 0.50, with a median coefficient of + 0.30. This indicates that the CSAI is sensitive enough to detect the different levels of state anxiety experienced by subjects in different situations.

Self-Efficacy (S-E) . A five item serving specific S-E inventory was administered before both serving tests to assess changes in subjects S-E cognitions over the course of the study. The measure was designed according to specifications prescribed by Bandura (1977) and employed by Feltz (1982), McAuley (1985), and

Miller and McAuley (1987). The accurate measurement of self-efficacy has been shown to be best achieved by employing a task specific measure of self-efficacy rather than a general measure of physical self-efficacy (McAuley & Gill, 1983).

Five hierarchical levels of serving difficulty representing poor, average, good, very good and excellent performance (5, 8, 11, 14, & 17 points scored out of a possible of 20) were chosen. Subjects indicated with a yes or no response which levels they thought they could successfully complete and how confident (10%-100% certainty) they were of succeeding at each level. Strength of self-efficacy was determined by totalling certainty ratings across items and then dividing by the number of difficulty levels (5).

Commitment / Difficulty. Goal commitment / difficulty were assessed immediately following both serving tests on a 7 point Likert scale for the G-S group. This is similar to an 11 item question used by Weinberg, Bruya, Garland, and Jackson (1990). Locke and Latham (1990a) recommend that a multiple item scale be used to assess commitment. The instruction group was asked to indicate its commitment to the task and perceived difficulty of the task on a similar Likert scale. The task commitment/difficulty questions served as fillers for the control group to ensure that the questionnaires for both treatments were of a similar length.

Experimenter Concern. To test for a Hawthorne effect, subjects' perception of experimenter concern was assessed on a 7 Point Likert scale. Locke and Latham (1990a) " strongly recommend that manipulation checks include a measure of supervisory/experimenter supportiveness " (p. 353).

Effort Expenditure . In order to assess whether there was a significant difference in motivation toward the study between the treatment conditions, individual

effort expenditure was assessed on a 7 point Likert scale. Weinberg, Bruya, Garland, and Jackson (1990) and Tenenbaum, Pinches, Elbaz, Bar-Eli and Weinberg (1991) asked subjects how hard they would try to reach their goal, with responses ranging from 1 (not at all) to 11 (really wanted to). Instruction only group subjects were asked how much effort they planned to put into the study. For the Instruction only group the effort expenditure question served dual purposes: first as a filler, to ensure the questionnaires for both treatments were of a similar length, and second as a manipulation check to ensure that there was no difference in the effort applied to the study between treatments..

CHAPTER FIVE: RESULTS

Analyses of variance were used to: a) assess the differential effects of goal setting and instructional treatments on test serving performance, test serving self-efficacy, both game and test serving anxiety and b) test for differences where additional goal setting occurred.

Pearson product moment correlations were calculated to determine the relationships between game and test serving performance, anxiety and serving performance, goal difficulty/commitment and improvement in serving performance. A t-test was employed to assess the differences in anxiety levels between the game and test environments.

An analysis of variance was used to assess differences between the control group and a subsequently newly formed group called "all goal setters", made up of those control subjects who set goals spontaneously plus existing goal group subjects in performance.

5.1. Hypothesis 1: Effects of goal setting and instruction on test serving performance

A breakdown of test service performance is given in table two. The Goal group did show a greater (but not significant) improvement (m = 2.2) in test serving performance than was the case for the I group (m = .06).

Table 2. Means and standard deviations of test service performance

	Goal group (n= 20)		Instruction group (n= 16)	
	Mean	s.d	Mean	s.d
Test 1	5	5	7.5	4.63
Test 2	7.7	4.5	7.56	3.7.

Athletes with specific self-set performance goals (the goal group) did not improve serving performance significantly more than did athletes with do-your-best goals (the instruction only group) when tested for service performance in a controlled test. A 2 x 2 (groups x trials) ANOVA was employed to assess the effects of the two treatments on test serving performance. Preliminary analysis indicated that the differences between treatment conditions in the test environment were not significant, F (1,35) = 1.817, n.s (see table 3). Hence hypothesis one was rejected.

Table 3. Summary of one way Anova of the effects of goal setting and instruction on test performance

Source:	d.f.:	Sum Squares:	Mean Square:	F-test:
Between groups	1	40.613	40.613	1.817
Within groups	34	760.138	22.357	p = .1866
Total	35	800.75		

5.2. Hypothesis 2: Generalizability of test serving performance to the game serving performance

The prediction that there would be a positive linear relationship between game service score and test service score was not supported. To test the generalizability of the testing phase of the study, game serving performance was correlated with test serving performance. There was a very low positive correlation between game and test serving performance (r = 0.073). The mean number of service opportunities for all subjects was 8.8. Of this total 36.5% were classified as non-attempts leaving an average of only 5.7 serves per participant to analyse. For a more detailed breakdown of game service results see Table 4.

Table 4. Breakdown of game service results .

Serving Performance	0*(%)	1**(%)	Fault(%)	No attempt	(%)Mean No. of serves***
Time 1	69 (29)	45 (19)	22 (9)	104 (43)	5.03
Time 2	80 (32)	71 (29)	22 (9)	75 (30)	6.40
Totals	149 (30.5)	116 (23.7)	44 (9)	179 (36.5)	5.70

* : Indicates that the serve was served into the opponents court

** : Indicates that the ball was served into the designated serving area

*** : Indicates the Mean number of service attempts per participant

5.3. Hypotheses 3A, 3B, and 3C: State anxiety and serving performance

There was some support for hypothesis three A. The correlation between serving performance and state anxiety in the first test situation was $r = -0.419$; $p < 0.0109$. A slightly higher correlation was found between test serving performance and state anxiety in the test environment at time two ($r = -0.467$; $p < 0.0041$). Both of these negative correlations indicate that those subjects with high levels of state anxiety performed more poorly than those subjects with low levels of state anxiety.

The prediction that game situation levels of state anxiety would be significantly greater than levels of state anxiety in the test situation was not realised. The mean anxiety level in game one ($m = 19.67$) and test one ($m = 19.06$) were not significantly different: $t(29) = 1.02$, n.s, $p < 0.1582$. The mean anxiety levels in game two ($m = 17.78$) and test two ($m = 18.74$) were not significantly different ($t(31) = 0.714$, n.s, $p < 0.4805$). Hence hypothesis three B was rejected.

A 2 X 2 (groups by trials) ANOVA was used to assess the differences in state anxiety between treatment conditions in both the testing and game environments. The G group reduced its level of anxiety (m = -1.6) in the testing environment significantly more than did the I group (m = -0.68); $F(1,36) = 2.843$, $p < 0.10$ (see table 5). No significant differences were found for the game state anxiety scores $F(1,36) = 2.496$, $p < 0.125$, although goal subjects did reduce their level of state anxiety (m= -3.5) over the course of the study in the game situation more than did the I group subjects (m= - 0.214) (see table 5). Hence hypothesis three C was rejected.

Table 5. Mean reduction of anxiety levels

	Goal	Instruction	d.f	F	P
Test	-1.6	- 0.68	36	2.483	< 0.10
Game	-3.5	- 0.214	27	2.496	< 0.125

5.4. Hypothesis 4: Self-efficacy and serving performance

All subjects improved their self-efficacy scores. Goal group mean self-efficacy scores improved from 19 to 37.8; and Instruction group mean self-efficacy scores improved from 33.6 to 34.1 (see table 6). An ANOVA indicated that self-efficacy improvement scores differed significantly between treatments $F(1,15) = 6.934$, $p < 0.05$. The goal group improved self efficacy scores significantly more than did the instruction only group, and so hypothesis 4 was accepted

Table 6. Means and standard deviations for self-efficacy

	Time one		Time Two	
	Mean	s.d	Mean	s.d
Goal group	19	9.32	37.8	21.5
Instruction Group	33.6	26.5	34.1	28.7

5.5. Hypothesis 5A and 5B: Additional goal setting

No subjects in the goal group set additional specific performance goals, hence it was not possible to investigate hypothesis five A. The second questionnaire completed by the Instruction group required subjects to detail any goals that they had set for themselves. Nine members of the Instruction group were found to have set specific performance goals (SPG). Two further subjects set non specific goals. To test for differences within the Instruction group, those subjects who informally set specific performance goals (n=9) were compared to those subjects who did not set specific performance goals (n=7). Those Instruction group subjects who set SPG informally, improved serving performance significantly more than did subjects who did not set SPG $F(1,15) = 6.428$, $P < 0.05$ (see table 7). Hence hypothesis five B was accepted.

Table 7: Summary table of test performance improvement means and standard deviations for instruction group subjects who set specific performance goals.

	Mean	S.D
Set Specific performance goals (n = 9)	2.22	3.93
Did not set specific performance goals (n = 7)	- 2.71	3.73

5.6. Hypothesis 6: Goal commitment

A correlational analysis indicated that there was a low positive correlation between goal commitment and test performance improvement ($r = 0.148$, $p < 0.534$), and so hypothesis six was rejected.

5.7. Hypothesis 7: Goal difficulty

The correlation between goal difficulty and test performance improvement was $r = 0.453$; $p < 0.045$. This correlation suggests that higher levels of perceived goal difficulty were associated with higher levels of serving performance. This significant correlation supports the acceptance of hypothesis seven.

5.8. Additional analyses

Due to the conclusive support for hypothesis 5b, and rejection of hypothesis 1, addition analyses were conducted to investigate further the effect of instructional group participants setting goals, albeit informally (see table 8).

Table 8. Means and standard deviations for difference scores 'all goal setters' and 'non goal setters' in the test environment.

	All goal setters (N = 29)		Non goal setters (N = 7)	
	Mean	S.D	Mean	S.D
Serving performance Improvement	2.20	4.54	-2.71	3.77
Serves to designated zone	1.14	3.58	-2.14	2.79
Serving Faults	-1.16	2.29	0.69	1.11

It was found that "all goal setters" (participants who set specific performance goals formally or informally) improved their serving ability in the test environment. When "all goal setters" were compared to non goal setters, a significant between-group difference surfaced $F(1,35) = 6.99$, $p < 0.01$ in the testing environment (see Tables 9 and 10).

Additional analyses were also implemented to explore exactly where treatment conditions differed in the serving test. "All goal setters" served more balls into the designated zone and served fewer faults than did non goal setters in the test environment (see tables 9 and 10). Both of these differences were significant $F(1,35) = 5.054$, $P < 0.05$ and $F(1,35) = 3.759$, $P < 0.10$ respectively. No significant differences arose between "all goal setters" and non-goal setters from the game data.

Table 9. Summary one way Anova comparing 'all goal setters' to non goal setters in the test environment.

Source	Sum of the Squares	Mean square	d.f	F	P
Test	136.56	136.56	35	6.99	0.01
Serves to the designated zone	60.695	60.695	35	5.054	0.05
Service faults	20.072	20.072	35	3.759	0.10

Table 10: Summary tables of means and standard deviations of serving performance, serves into the designated zone and serving faults

	Time two		Time One	
Aggregate Serving Performance				
	Mean	S.D	Mean	S.D
All Goal Setters	5.56	4.9	7.86	4.3
Non Goal Setters	9.43	3.41	6.71	3.77
Serves to the designated zone				
	Mean	S.D	Mean	S.D
All Goal Setters	8.82	3.5	9.96	3.22
Non Goal Setters	11.1	3.1	9.0	3.05
Serving Faults				
	Mean	S.D	Mean	S.D
All Goal Setters	3.26	2.35	2.103	1.69
Non Goal Setters	1.71	0.95	2.4	0.97

Finally a check on a possible Hawthorne effect was investigated. Subjects' post-test evaluations of Experimenter Concern $t(19) = 1.259$, $p < 0.2233$ and effort expenditure $t(19) = 0.45$, $p < 0.6581$ indicated no significant differences between treatments (see table 11).

Table 11. Summary table of means and standard deviations for experimenter concern and effort expenditure.

	Effort Expenditure		Experimenter Concern	
	Mean	s.d	Mean	s.d
Goal group	5.4	0.995	4.65	1.59
Instruction Group	5.688	1.38	3.812	2.257

CHAPTER SIX: DISCUSSION

The primary aim of the present research was to test the hypothesis that setting goals improves volleyball serving performance. Particularly, it was expected that those subjects who set specific performance goals would improve serving performance more than would a control group. The goal setting intervention was expected to have a positive effect on volleyball serving self-efficacy and lead to decreases in state anxiety. In the following discussion the research findings will be examined in relation to the existing literature. Criticisms and implications of the research will also be discussed along with suggestions for future research.

6.1. RELATING THE RESULTS TO THE RESEARCH

The goal group subjects improved their serving performance more than did the control group subjects in the testing environment. The goal setting treatment improved serving performance by an average of 2.2 points (out of a possible twenty points), whereas the control group improved by only 0.6 of a point. However, the difference between treatments, was not significant.

There are several explanations as to why performance effects are less forthcoming in sports situations than they are in the organisational setting. The time period (nine days) may not have been long enough or the number of practice sessions sufficient for significant performance improvements to occur. The nature of feedback and the significantly higher levels of general competitiveness which are exhibited by sports people are two ways in which studies in sports and organisations differ.

The most likely explanation that there was not a significant difference between treatments, was that nine of the sixteen control group subjects set specific performance goals without being prompted to do so by the experimenter.

The spontaneous setting of goals by control group subjects is not a new finding in goal setting research. Weinberg, Bruya, and Jackson 1985; Weinberg, Bruya, and Jackson 1990; and Boyce, 1990 also found that many control subjects set specific performance goals. The type of information received following the performance of a sports skill is usually more immediate and accessible than that which is received in the organisational setting.

The absence of objective performance effects in the present study may be attributable to the fact that feedback was readily available prompting instruction subjects to spontaneously set goals. As the subjects in the present study were elite performers it is probable that they were all highly motivated to perform to the best of their potential. Regardless of whether the athlete experienced the goal setting programme or not, it is likely that they directed their behaviour, increased their intensity, trained persistently, and sought to develop strategies with respect to the task of increasing their serving performance.

Locke and Latham (1990a) have contended that poor methodology has resulted in do-your-best subjects actually setting goals, i.e. going beyond the treatment. They state that "when subjects are given feedback about past performance, they may use it to set specific goals" (1990, p. 311). Locke and Latham call for the design of studies to either withhold feedback or vary the work periods so that subjects cannot calculate average rates. However, Locke and Latham's recommendations are not universally accepted.

Weinberg and Weigand (1993) reject Locke and Latham's contention claiming that feedback is inherent in many of the tasks employed in sport and exercise. They assert that "the tampering with or the elimination of feedback creates an artificial setting bearing little resemblance to the real world". Furthermore, significant differences between specific goal groups with feedback and do-your-best groups without feedback may be due to the differences in feedback rather than the actual goals.

While identifying that many control group subjects set goals without any directive to do so, previous research has not concerned itself with the performance of those subjects who set goals (with prompting) in relation to those subjects who did not set goals at all.

In the present study those control group subjects who set specific performance goals improved their level of serving performance significantly more than did the remainder of the control group who did not set specific performance goals. The instruction group subjects who set goals clearly benefited by doing so. This finding provides support for the claim that the setting of goals enhances performance. The setting of goals regardless of whether the goals are externally (experimenter or coach) or internally (subject or athlete) initiated is effective for improving motor performance.

When all goal setters were grouped (those subjects who set goals as instructed by the researcher or set goals by themselves) goal setting was found to be an effective tool for improving volleyball serving performance.

All goal setters served more balls into the designated zone and served fewer faults than did the instruction group. This indicates that those subjects who set goals served more consistently than did those subjects who did not set goals. This finding is consistent with the existing research which suggests that goals direct and intensify behaviour and increase persistence on the task (Komaki, Barwick, and Scott, 1978). Upon closer examination it was revealed that non-goal setters serving performance declined over the course of the study. They served fewer balls into the designated zone and served a greater number of faults in the testing environment. Those subjects who set goals became more focussed toward the serving task and as a result performed more consistently whereas those subjects who did not set goals lost their focus and served less consistently.

Testing the generalizability of test service performance to game service

performance was central to this study. The very low positive correlation (0.073) between game and test serving performance suggests that the volleyball serving test administered in this study has little relationship with an athlete's serving performance in the game situation. The pool of game data was either, insufficient to reveal any generalizability between test performance and game performance, or no relationship exists between game and test data. If there is no relationship between the ability to serve in a test situation and serving performance in the game situation then there is considerable doubt about the validity of the serving test. The serving test may lack external validity as it required subjects to serve 20 balls consecutively whereas serving occurs more intermittently in a game situation.

Due to the large number of "no attempts" from the game data, participants were interviewed in the hope that some explanations could be found. A variety of reasons surfaced from the interviews. One subject misunderstood where it was that he was instructed to serve the ball in the first game. This one individual accounted for 10 'no attempts' in the first game. Several players admitted that when the pressure came on during a game they reverted to what they considered to be their safety serve. This serve in most cases was not to the designated zone. A large number of players said that they served away from the designated zone when a very strong receiver was positioned there or when a very weak receiver was positioned in another zone.

The coach of one of the teams had been training the tactic of line serving prior to the commencement of the study. Many of the players in this team acknowledged the fact that they executed line serves in keeping with the coach's wishes. The rate of 'no attempts' for this team was 58% and 43 % for games one and two respectively. This team contributed the largest number of players from any one team (8) to the study and provided 27% of all game data at time 1 and 25% of all game data at time 2. This result illustrates the perils of assuming

external validity from experimental settings.

It was found that those subjects with high levels of state anxiety performed poorer than those subjects with low levels of state anxiety. This finding was true in both the testing and game situations and is congruent with Cox (1986) and Lanning and Hisanaga (1983) who also found that low levels of anxiety were conducive to higher levels of volleyball serving performance.

There was no difference between state anxiety levels experienced in the test environment and the level of anxiety experienced in the games. Of the nine games during which serving performance was assessed, only two games went more than three sets with both of these games resulting in 3-1 score lines. This suggests that none of the games in which athletes' serving performance was assessed were close encounters.

Dawthwaite and Armstrong (1984) found that players were significantly more anxious before crucial games than was the case prior to easy games. One possible explanation for the result that anxiety levels did not differ significantly between game and testing environments is that the games were not perceived as crucial. Players either perceived the game as an easy win or as a probable loss. Thus athletes were not as anxious as they might have been had the games been played between opponents of more equal standing in the league.

It was found that the goal group reduced its level of anxiety in the testing environment significantly more than did the instruction group. Given that there was not a significant performance difference between treatments, this finding is difficult to explain in terms of goal setting, but may be able to be explained in terms of the results reported in relation to self-efficacy.

The coaching of athletes to set performance goals for training has been shown to produce positive effects on performance self-efficacy (Feltz, 1982; Baring and Abel, 1973; Feltz and Mungo, 1983; and Miller and McAuley, 1987). The present research is consistent with the literature, as the goal group subjects

improved self-efficacy more than was the case for the instruction group subjects. The reduction in anxiety levels of goal group subjects may be attributable to the increases in self-efficacy experienced by goal group subjects. Self-efficacy theory predicts that as subjects improve self-efficacy, they will experience lower levels of anxiety. As subjects become more confident in their abilities to perform a particular task, they will become less anxious about performing that task.

Hence, although goal group subjects did not improve serving performance significantly more than the instruction group, the goal setting seminar may have been sufficient to account for the improvement in serving self-efficacy. Miller (1987) found that goal setting training has a positive influence on self-efficacy. The seminar helped goal group subjects to feel more confident about their ability to serve into the designated serving zone. It must be remembered that the recording of self-efficacy was taken prior to testing: Subjects were not assessing actual performance but their perceived ability to serve into the designated serving zone.

Results indicated that levels of goal commitment were only very weakly related to test serving improvement. This finding conflicts with the existing research which predicts that those subjects with high levels of goal commitment display greater levels of performance improvement (Locke, Shaw, Saari, and Latham, 1981). A possible explanation as to why results differ from those in the literature is that the particular Likert scale used to assess commitment was not sensitive enough to discriminate between levels of goal commitment. Further investigations revealed that mean goal commitment was very high and the standard deviation was small (m = 6.1; s.d. = 0.788). Hollenbeck, Williams, and Klein (1989) suggest that the use of a scale which lists multiple specific behaviours is a more accurate method of assessing goal commitment as at present there " is no standardised, agreed upon measure of goal commitment ".

Those subjects who perceived their goal as being difficult, improved their

serving performance more than did subjects who perceived their goal as being not very difficult. This finding supports a large body of evidence which predicts that difficult goals enhance performance (Locke, Shaw, Saari, and Latham, 1981 and Tubbs, 1986).

Subjects' reported levels of perceived experimenter concern and effort expenditure that were not significantly different between treatment conditions. These manipulation checks indicate that subjects tried equally hard and perceived that the experimenter showed equal concern for all subjects regardless of which treatment they were assigned to.

6.2. IMPLICATIONS

The present research has implications for athletes, coaches and sports' psychologists. The implementation of goal setting programmes for sports' teams with the specific aim of improving individual performance and self-efficacy would seem to be beneficial. By setting up a programme where athletes undergo goal setting training, instructing them in the most appropriate ways to implement goals and then providing athletes with ongoing objective feedback on performance, athletes may implement the process of goal setting in an enduring fashion over the course of the season. Coaches may wish to be selective in deciding which of the skills they wish athletes to set goals for and then guide athletes to choose skill areas appropriate to their needs.

It is important that goals provide participants with the flexibility to make choices which fit into their personality and value structure. This ensures that they perceive their behaviour as being self-determined and internally consistent as internally incongruent goals serve to restrict rather than enhance performance (Rotella and Connely, 1984; and Kirschenbaum, 1985).

The setting of goals, regardless of whether the athlete undergoes formal

goal setting training or not was shown to have a positive effect on performance. The logical implication is that athletes should be encouraged to set their own specific performance goals. The setting up of situations during trainings where the athletes receive performance specific feedback has the potential to prompt athletes to set goals for themselves. Furthermore, drills should be designed so that it is possible for the athletes to obtain objective feedback during trainings. Feedback can be achieved by the coaching staff providing the data or by the athlete themselves being able to make an objective assessment of their performance. The athletes can then choose the feedback they require to set their own performance goals derived from the feedback.

The number of training sessions and the length of time spent on training the serve may have been insufficient to elicit a significant improvement in serving performance. The number (3) and length (2 hours, with 20 minutes devoted to serving) of the practice sessions in the present study was similar to that which would normally be undertaken by teams operating in a weekly league competition in New Zealand. It is acknowledged that many overseas collegiate and professional teams train daily. Hence, it is possible that the non significant findings could be reversed if the athletes had had more practice at serving the ball into the designated zone.

Goal setting training was shown to have a positive influence on self-efficacy. The implementation of a goal setting programme serves as a useful procedure for manipulating an athlete's level of task self-efficacy and in turn their performance of the task. These cognitive benefits could be extremely helpful in sport. Goal setting provides reserves and injured players with a procedure for maintaining a positive perception of their abilities to perform a task. The setting of specific performance goals will also help athletes persist in their efforts during the phases of the season which they "sit out".

The implementation of a goal setting programme has shown itself to be an effective procedure for reducing the anxiety levels of athletes. Cox (1986) and

Lanning and Hisanaga (1983) have shown that lower levels of anxiety lead to better volleyball serving performance. While an improvement in serving performance did not surface in the present study, there were clearly reductions in the anxiety levels of goal group athletes in the test and game environment. The reduction in levels anxiety is attributable to subjects improving their level of self-efficacy which in turn was a result of the goal setting programme.

Serving performance in volleyball benefits from low levels of competitive state anxiety which suggest that coaches should encourage a confident but relaxed approach to serving in volleyball. This may require the athlete to lower their level of anxiety prior to executing a serve. In the game situation a player has approximately five seconds prior to receiving the ball and a further five seconds following the referees whistle before they must serve the ball. During this time players who identify themselves as being anxious have an opportunity to go through a self-initiated centering procedure (Loehr, 1986) designed to relax the athlete. The centering procedure prescribed by Loehr requires the performer to take a deep breathe and while exhaling slowly relax their body from the centre outwards. This procedure has been shown to be beneficial for both relaxing and focusing an athlete during competition.

6.3. CRITICISMS OF THE PRESENT STUDY

A major problem associated with this field research centred around the collection of game serving data. The number of participants who on a significant number of trials made no attempt to serve the ball toward the designated serving zone during the collection of the game data was an unforeseen problem. The resulting sample of data was small and hence the statistical analyses were inhibited.

The lack of generalizability of test serving performance to game serving performance could have been due to the small pool of data collected from game

serving performance. Nevertheless, the lack of generalizability casts considerable doubt on the external validity of the serving test used in this study. As previously discussed, the implications of this result may also cast a degree skepticism on a number of other studies which have also used block testing of a skill which is generally performed intermittently in the game situation.

The use of a Likert scale was an inadequate measure of goal difficulty and goal commitment, thus future research is advised to use a scale which lists multiple specific behaviours as suggested by Hollenbeck, Williams, and Klein (1989).

6.4. FUTURE RESEARCH

Assessing the generalizability of volleyball serving performance in a controlled training environment to serving in the game situation is a prerequisite to establishing an externally valid volleyball serving test. The results of this study highlight the necessity to develop a valid volleyball serving test for elite performers as present procedures fail to take account of the fact that the serve is performed intermittently during a game by any one player.

The present research has raised the issues of the length of the study, the number and length of trainings and the type of practice used in the learning of a skill. Only one drill was employed and this was based on the theory associated with the specificity of learning hypothesis as detailed by Henry (1960). Future research may be interested in whether improved serving performance of elite volleyballers is better achieved by applying the variability of learning paradigm.

Future research of goal setting in sport should consider the cognitive, as well as behavioural effects of goal setting. Self-efficacy and anxiety have been linked to goal setting but a more detailed understanding of this relationship requires additional attention.

In order for goal setting to be taken on board by a sports' team or by an

individual, more detailed information is needed in two areas First, the goal setting programme itself needs development to ensure it is effective, and second an appropriate training regime is required to ensure that optimal performance benefits are able to be achieved. It is widely acknowledged that performers of sports tasks set goals due to the nature of the feedback that they receive while performing. Future research should assess the effectiveness of goal setting training programmes. This could be achieved by comparing athletes who are given training in the goal setting process prior to setting goals with athletes who are instructed to set goals but are not given any information pertaining to goal setting procedures.

CHAPTER SIX : CONCLUSION

Past research in industry and organisations has accumulated very strong evidence supporting the positive effects of goal setting. However the empirical findings generated from sport and exercise studies have yielded inconclusive results. The present study has highlighted some of the problems associated with applying goal setting in the domain of sport and exercise. In general the findings of this study highlight the need to further assess goals setting in sports and exercise contexts.

The positive effect on performance, self-efficacy and anxiety initiated by goal setting has been partially supported by the results reported in this study. The findings of this research attest to the motivating power inherent in the process of goal setting. Regardless of origin, goals have been shown to be a powerful motivating process.

A number of factors appear to contribute to the discrepancies between results found in sport related investigations and those obtained from studies conducted in business and laboratory environments. The availability of detailed feedback has been identified as a consistent problem in goal setting research in sport and exercise. The present study is no exception to this rule. It was found that non goal subjects used feedback to set goals for future performance.

Studying the effects of goal setting in sport and exercise is fraught with problems associated with the highly motivated competitive personalities of elite performers who are typically employed in goal setting research. This may well limit the the motivating effect initiated by the the goal setting process. It has been suggested that teaching athletes to effectively set goals, and then providing them with objective and ongoing feedback on performance will prompt the athletes to set goals for themselves.

The implications of the results for coaches and athletes are still felt

to be worth noting. While effective procedures for implementing goal setting programmes in sport and exercise are being developed further research is required before goal setting can be applied with any degree of confidence.

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APPENDICES

APPENDIX A

PRE-STUDY QUESTIONNAIRE

NAME:_____ AGE: _____

PHONE NO. _____

ADDRESS: _____

TEAM: _____ PLAYING NUMBER:_____

YEARS PLAYING VOLLEYBALL:_____

YEARS PLAYING 'A' LEAGUE VOLLEYBALL: (COUNT THIS YEAR)_____

HIGHEST LEVEL OF VOLLEYBALL PLAYED (Tick one)

- A LEAGUE ___
- PROVINCIAL ___
- INTERNATIONAL ___

APPENDIX B

INFORMED CONSENT

The purpose of this study is to examine the effectiveness of two types of instruction on serving accuracy. The study take place over a period of 8 days. If you choose to participate in the experiment you will be randomly assigned to one of the two groups, tested, undergo a specific set of instructions and finally retested. Members of each group will be required to continue under their respective group instruction throughout the week of the study. While both teaching methods are considered likely to benefit your serving performance, it is impossible to ensure that one approach will be more effective than the other. You are asked not to make any major adjustments to your serving technique during the study period.

Attendance will be required at all sessions. Sunday's session will include a 20 minute teacher lead conference. On Tuesday Wednesday and Thursday you will be given 15 minutes specific serving practise. Throughout the study you will be asked to complete several short questionnaires. The top server will receive a cash prize of $30.

General results of the investigation will be made available to all persons participating in the study.

If you choose to participate, confidentiality as to the type of instruction you are receiving will be required. If at any time you desire to discontinue as a participant, you will be free to withdraw. All information collected will be confidential as will be the identity of the participants.

I agree to participate in this study under the conditions stated above.

NAME _____

SIGNATURE _____ DATE _____

APPENDIX C

CSAI GAME

DIRECTIONS: Below are some statements about how you felt while serving in the game situation. Read each statement and decide at which level on the four point scale you were at. If you choose NOT AT ALL, circle the letter A, if your choice is SOMETIMES, circle letter B, if your choice is MODERATELY, circle letter C, and if your choice is VERY MUCH SO, circle the letter D. There are no right or wrong answers. Do not spend too much time on any one statement. Remember to choose the letter that described how you felt while serving.

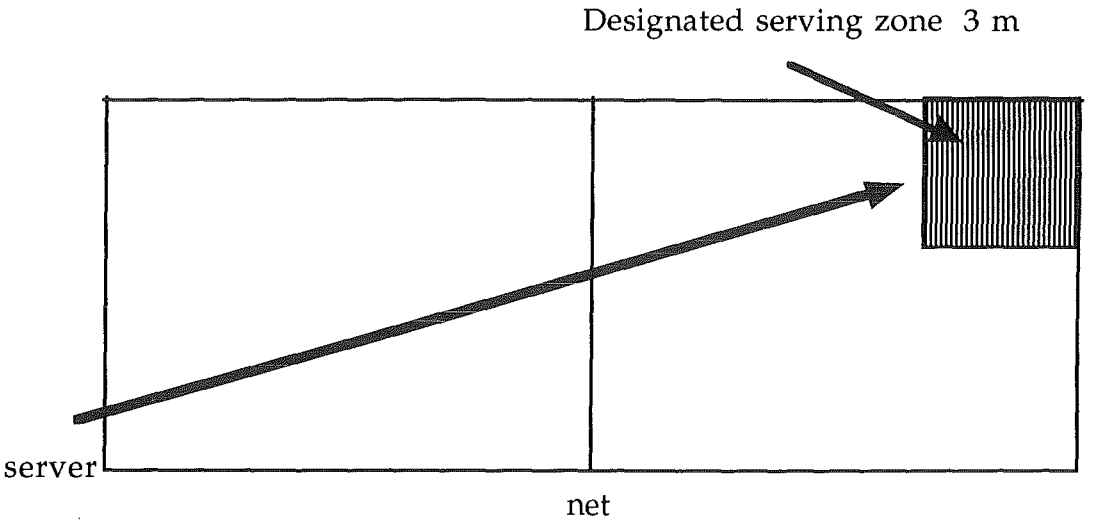
	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I felt at ease	A	B	C	D
2.I felt nervous	A	B	C	D
3. I felt comfortable	A	B	C	D
4. I felt tense	A	B	C	D
5. I felt secure	A	B	C	D
6. I felt relaxed	A	B	C	D
7. I felt jittery	A	B	C	D
8.I felt calm	A	B	C	D
9. I felt anxious	A	B	C	D
10. I felt over-excited and rattled	A	B	C	D

APPENDIX D

SELF-EFFICACY QUESTIONNAIRE

NAME:_____

TEAM: _____ PLAYING NUMBER:_____



The following question is designed to evaluate your confidence in your ability to serve the ball into the shaded area of the court in the above diagram.. Listed below are five levels of serving performance. Please indicate how confident you are, at this moment, that you can complete each level successfully. One point is given for a serve that lands within the designated area; no points are given for a ball which is served into any other part of the court and a point is deducted from your total if a fault is served.

Note: If you are absolutely certain you can complete the level, you should circle 100. If you are moderately certain, you should circle 50. If you are highly uncertain, you should circle 10.

A) I can successfully make 5 points from 20 serves. Yes ___ No ___

10	20	30	40	50	60	70	80	90	100
Highly Uncertain				Moderately Certain				Absolutely Certain	

B) I can successfully make 8 points from 20 serves. Yes ___ No ___

10 20 30 40 50 60 70 80 90 100

Highly Uncertain | Moderately Certain | Absolutely Certain

C) I can successfully make 11 points from 20 serves. Yes ___ No ___

10 20 30 40 50 60 70 80 90 100

Highly Uncertain | Moderately Certain | Absolutely Certain

D) I can successfully make 14 points from 20 serves. Yes ___ No ___

10 20 30 40 50 60 70 80 90 100

Highly Uncertain | Moderately Certain | Absolutely Certain

A) I can successfully make 17 points from 20 serves. Yes ___ No ___

10 20 30 40 50 60 70 80 90 100

Highly Uncertain | Moderately Certain | Absolutely Certain

APPENDIX E

CSAI TEST

DIRECTIONS: Below are some statements about how you felt while serving in the test situation. Read each statement and decide at which level on the four point scale you were at. If you choose NOT AT ALL, circle the letter A, if your choice is SOMETIMES, circle letter B, if your choice is MODERATELY, circle letter C, and if your choice is VERY MUCH SO, circle the letter D. There are no right or wrong answers. Do not spend too much time on any one statement. Remember to choose the letter that described how you felt while serving.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I felt at ease	A	B	C	D
2.I felt nervous	A	B	C	D
3. I felt comfortable	A	B	C	D
4. I felt tense	A	B	C	D
5. I felt secure	A	B	C	D
6. I felt relaxed	A	B	C	D
7. I felt jittery	A	B	C	D
8.I felt calm	A	B	C	D
9. I felt anxious	A	B	C	D
10. I felt over-excited and rattled	A	B	C	D

APPENDIX F

GOAL SETTING SEMINAR

SEMINAR OBJECTIVES:

To inform participants about the various mechanisms and dimensions of goal setting in order to

(A) elevate the subjects commitment to the programme.

(B) enable athletes to set S.M.A.R.T. goals.

(C) elevate the subjects commitment to serve to the serving box

SEMINAR CONTENT

At the conclusion of this seminar you will set a serving goal. The goal will be in regard to the test that you were involved in this today.

GOAL MECHANISMS

Participants were told that if they committed themselves to attaining the goal that they set then the following goal mechanisms will aid them in achieving the goal in the following ways

Direct your behaviour

Intensify your behaviour

Increase your persistence toward the task

GOAL SPECIFICITY

Participants were informed of the importance of making their goal specific, for example an exact score on the serving test as opposed to "to serve better".

GOAL DIFFICULTY

Goal difficulty was presented as a major moderator of goal effects. Subjects were encouraged to set their serving goal at, but not beyond their capabilities. The

importance of goal commitment in determining the effectiveness of goals was also noted.

THE DIFFERENCE BETWEEN OUTCOME AND PERFORMANCE GOALS

The differences between performance and outcome goals were examined both by way of definition and example. Subjects were informed about the benefits of performance based goals.

KNOWLEDGE OF RESULTS

The role of knowledge of results was stressed as an important influence on the success of goal setting.

GOALS SHOULD BE S.M.A.R.T

The abbreviation S.M.A.R.T was used to highlight the goal dimensions that should be considered when a goal is being set.

Specific and multiple

Measurable

Attainable but difficult

Realistic

Time (A time must be set down in order to evaluate the performance in terms of the goal).

INSTRUCTION SEMINAR OVERVIEW

The goal setting subjects were given a outline of the instruction seminar. The major emphasis was to highlight the effectiveness of the serve to the serving box.

Participants were asked to fill in Goal Setting Questionnaire 1 and to establish a goal for the serving test next week. Finally subjects were asked not to make any modifications to their serving technique until the study was completed.

APPENDIX G

GOAL SETTING QUESTIONNAIRE ONE

NAME:_____

TEAM: _____ PLAYING NUMBER:_____

Effort Expenditure

On a scale of 1-7, (1 being no effort at all and 7 indicating that you could not have tried any harder). How much effort do you plan to put into this study?

Circle you choice

1 2 3 4 5 6 7

No effort Maximum effort

Goal Difficulty

On a scale of 1-7 (1 being not difficult at all and 7 being extremely difficult). How difficult, do you believe, is the goal that you have set for yourself?

Circle you choice

1 2 3 4 5 6 7

Not difficult at all extremely difficult

Goal Commitment

On a scale of 1-7, (1 indicating that you do not want to achieve your goal and 7 indicating that you really want to achieve your goal). How much do you want to achieve your goal?

Circle you choice

1 2 3 4 5 6 7

do not want to achieve your goal

really want to achieve your goal

State Your Goal:

In the space provided state the number of services out of 20 that your expect to be able to land within tram line serving segment by next Sunday

YOUR GOAL - ____ out of 20.

APPENDIX H

INSTRUCTION SEMINAR

SEMINAR OBJECTIVES

To inform participants about the various serving techniques and tactics in order to

(A) elevate the subjects commitment to serve to the serving box

The focus of this seminar was twofold:

A) SERVING TECHNIQUES

Three types of serving techniques were described and evaluated.

- The spike serve
- The tennis float serve
- The Asian float serve

B) SERVING TACTICS

The advantages and disadvantages of serving to different zones of the court were outlined. Four different zones were discussed.

- The line serve
- The short serve
- The angle serve
- The serve to the serving box

The serve to the serving box was identified as one of the most tactically effectively serves.

Participants were asked to fill in Instruction Questionnaire 1. Finally subjects were asked not to make any modifications to their serving technique until the study was completed.

APPENDIX I

SERVING EFFORT/PERFORMANCE QUESTIONNAIRE ONE

NAME:_____

TEAM: _____ PLAYING NUMBER:_____

Effort Expenditure

On a scale of 1-7, (1 being no effort at all and 7 indicating that you could not have tried any harder). How much effort do you plan to put into this study?

Circle you choice

1 2 3 4 5 6 7

No effort Maximum effort

Task Difficulty

On a scale of 1-7, (1 being not difficult at all and 7 being extremely difficult). How difficult is the task of serving the tram-line for you?

Circle your choice

1 2 3 4 5 6 7

Not difficult at all Extremely difficult

Task Commitment

On a scale of 1-7, (1 indicating that you not want to serve the ball into the designated zone and 7 indicating that you really want to serve the ball into the designated zone). How much do you want to serve the ball into the designated zone?

Circle you choice

1 2 3 4 5 6 7

not wanting to serve the ball into the designated zone

really want to serve the ball into the designated zone

APPENDIX J

GOAL-SETTING QUESTIONNAIRE TWO

NAME:_____

TEAM: _____ PLAYING NO: ____

Goal Difficulty

On a scale of 1-7 (1 being not difficult at all and 7 being extremely difficult). How difficult, do you believe, was the goal that you set for yourself?

Circle your choice

1 2 3 4 5 6 7

Not difficult at all Extremely difficult

Goal Commitment

On a scale of 1-7, (1 indicating that you did not want to achieve your goal and 7 indicating that you really wanted to achieve your goal). How much did you want to achieve your goal?

Circle you choice

1 2 3 4 5 6 7

not wanting to really want to

achieve your goal achieve your goal

Experimenter Concern,

On a scale of 1-7, (1 being no concern and 7 being utmost concern). How much concern did the experimenter show toward you during the study?.

Circle you choice

1 2 3 4 5 6 7

No concern Utmost concern

Effort Expenditure

On a scale of 1-7 (1 being no effort and 7 indicating that you could not have tried any harder) How much effort did you put into this study?

Circle you choice

1 2 3 4 5 6 7

No effort maximum effort

Additional Goal Setting

Over the last week did you at any time set yourself additional personal serving goals. For example did you say to yourself "get all serves in",

"I'm going to get 5 out of the next 10 serves to land target area of the court" or any other similar statement.

Circle the correct response YES NO

If you answered YES describe the goal that you set for yourself.

APPENDIX K

SERVING EFFORT/PERFORMANCE QUESTIONNAIRE TWO

NAME:_____

AGE: _____ PLAYING NUMBER:_____

Task Difficulty

On a scale of 1-7, (1 being not difficult at all and 9 being extremely difficult). How difficult was the task of serving the tram-line serve for you?

Circle you choice

1 2 3 4 5 6 7

Not difficult at all Extremely difficult

Task Commitment

On a scale of 1-7, (1 indicating that you did not want to serve the ball into the designated zone and 7 indicating that you really wanted to serve the ball into the designated zone). How much did you want to serve the ball into the designated zone?

Circle you choice

1 2 3 4 5 6 7

did not want to serve the ball into the designated zone

really wanted to serve the ball into the designated zone

Experimenter Concern

On a scale of 1-7, (1 being no concern and 7 being utmost concern). How much concern did the experimenter show toward during the study?

Circle you choice

1 2 3 4 5 6 7

No concern Utmost concern